



Syddansk Universitet

Rural economies in times of crisis

Huric Larsen, Jesper Fredborg

Publication date:
2012

Document Version
Submitted manuscript

[Link to publication](#)

Citation for pulished version (APA):

Huric Larsen, J. F. (2012). Rural economies in times of crisis. Paper presented at Rural at the Edge, Joensuu, Finland.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Rural Economies in Times of Crisis

by

Jesper Fredborg Hurić Larsen[#]

Abstract: The rural economy has its advantages and disadvantages to the people and businesses located there. The different advantages and disadvantages between economic settings may be difficult to quantify, but the financial crisis may present a good opportunity to do so. When the financial crisis hit the Danish Economy, it did so by infecting all financial institutions and then on to industries depending on banks' goodwill to lend and extend credit. As rural economies usually is less dependent on capital as a production factor, and more on land and crop prices, you would expect rural economies to be less affected by the financial crisis. To highlight the economic differences between the rural and more urbanized economies, this paper focus on the resilience of the Rural economy in Denmark by examining the effects of the crisis on: economic activity, employment, availability of credit and education choice.

The key findings are that economic resilience, when faced with a financial shock, implies:

- An economy less dependent on economic activities linked to capital and with a higher degree of rurality.
- An economy with a higher degree of industrial specialization within certain sectors seems to have been an advantage.
- In terms of employment implies an economy that has a number of economic activities that has low correlation to economic cycles and to different economic shocks.
- In terms of access to credit, implies that an economy has a relative low dependence on credit with a short maturity, and that there is an easy access to credit in the economy, even when financial institutions are under stress.
- In terms of the perception of future economic possibilities, implies that an economy's population perceives their future economic position as relatively unchanged.

Keywords: Economic resilience, rural economy, urban economy, economic activity, financial crisis, economic well-being, unemployment, education choice.

[#] Assistant Professor, Rural Sociology Group, University of Southern Denmark in Esbjerg, Centre for Rural Research, Department of Environmental and Business Economics, jfhl@sam.sdu.dk.

1. Introduction

The focus of this paper is on economic resilience, seen as the ability of a geographical area's ability to manage economic shocks in particular the recent financial crisis. Empirical research and literature on regional economic resilience is sparse (Hill et al, 2008). Blanchard and Katz (1992) examine state-level (US) responses to negative regional economic shocks and find that a state typically return quickly to its previous growth rate, but not to its growth path. Feyrer et al (2007) examine US county- and metropolitan-level responses to job losses in automobile and steel production. Chernick (2005) examines the economic impact of 9/11 on New York, Liu and Plyer (2005) the effects of hurricane Katrina that hit New Orleans in 2005, and Wial and Friedhoff (2005) have examined job loss in the Great Lakes Region 1995-2005.

In all of the above mentioned articles economic resilience is seen as an area's ability to bounce back from an economic shock, but as the present financial crisis and the ensuing global recession seems far from over, the economies have not bounced back yet. Nevertheless resilience is in the perspective of this paper the way the economy adjust to find its way back on track in that sense resilience is adjustment process as well.

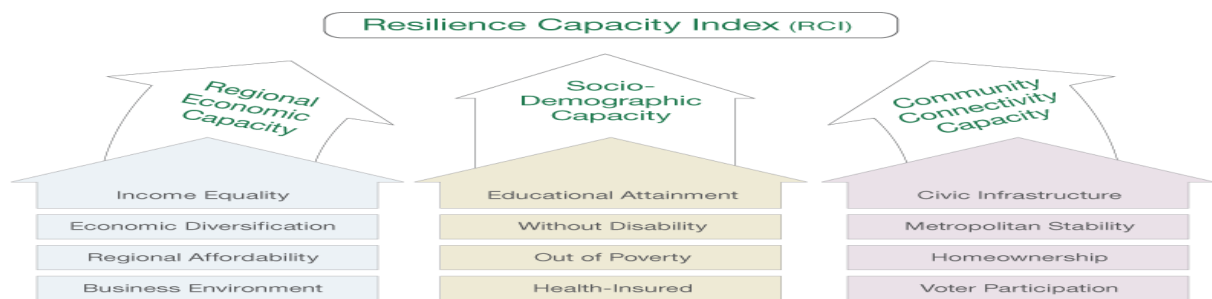
In contrast to what an economy can do to mitigate an economic shock, economic resilience emphasizes how well an economy can resist it altogether. In more than one sense, it implies the ability of the economy's components to make use of the existing ingenuity and resourcefulness during and after the event to bounce back as fast as possible. While mitigation often emphasizes the availability to detect early signals of crisis, plans and institutions for avoiding problems altogether, resilience has greater behavioural emphasis. It focuses on the fact that the components of an economy do not simply react passively, or in a "business as usual manner," in the face of a disaster, in doing so the strengths and weaknesses of an economy is easier to see. The view of an economy's resilience is important, because it enables us to understand the driving forces for reducing economic losses from disasters, and how the individual components may contribute to the overall economic resilience of the economy (BBR, 2011 and Hill et al, 2008).

Thus, the focus here is on the impact of the financial crisis from an economic perspective following the initial economic shock and is thus considering the period 2008 to 2011. Other investigations have been made recently with a similar purpose of analysing the effects of the financial crisis on rural areas. The Scottish Rural Policy Centre (SAC) have analysed the effect of the financial crisis on the Scottish rural economies in 2010 and found that the characteristic economic structure of rural economies have had an insulating effect to the initial impact of the financial crisis. The relative greater importance of sectors such as agriculture, food and hotels and catering in rural economies is seen as determining for the relative greater resilience of the rural compared to the urban economy. Henderson (2011) have analysed the US rural areas and found similar results. Just how well the Rural economy has fared to the financial crisis in Denmark has so far not been examined, but is the aim of this paper.

An analysis of the resilience of the Rural and Urban economies can focus on quite a number of different indicators of resilience. Following the BRR's (2011) Resilience Capacity Index, a

measurement of a region' economic resilience, the analysis in this paper will be on elements belonging to the two first pillars in Figure 1. In our case only those elements that most apparent has been affected by the financial crisis is examined (SAC, 2010, Abildgren et al, 2011, ØEM, 2010, and L&F, 2011). These are: 1) economic activity, to reflect that economic activity has plunged due to the crisis, 2) employment, to reflect the fact that the crisis have resulted in a rapid rise in unemployment level, 3) access to credit, to reflect that the crisis has its root in the financial markets, and 4) education choice, to examine the perception of the future economic situation of the economy.

Figure 1. Elements of Economic Resilience of Regions



Source: BRR (2011). The RCI was developed by the University at Buffalo Regional Institute, State University of New York.

The approach in this paper is centred on a number of hypotheses, regarding the difference between the Rural and Urban economy. Economic activity in the rural economy is seen as consisting largely of resource based income. The importance of this is seen in the difference in economic activity, something that is difficult to highlight under normal economic cycles, as economic cycles tend to affect economies in similar ways (Abildgren et al, 2011). A financial crisis tends to hit the economic sectors of an economy differently. More capital intensive production will tend to be hit much harder, than sectors depending on for example the development in resource prices. As such the differences in economic activities and their importance for the Rural and Urban economy and economic resilience are especially noticeable in times of crisis. The perceived disadvantages of the rural economy to the urban economy, usually explained as lower levels of social capital and a less diversified economy, may prove to be an advantage when the economy is hit by economic shocks, such as a financial crisis (Abildgren et al, 2011 and BRR, 2011).

2. Data and Levels of Measurement

A central theme in the study of rural and urban economies is the identification of the elements that set the two apart. Depending on the definition of what is rural and what is urban, the elements may differ, as well as the difficulty of identification. The definition used to separate the two economies in this paper, is that of the degree of rurality within a municipality, used and created by the Danish Ministry of the Interior. The municipal levels are used throughout the paper, whenever data allow it and provided it makes sense from a theoretical and empirical point of view. The classification system uses 14 objective criteria described in The National Strategy for The Danish Rural Areas 2007-2013. The 14 criteria are a mix of socio-economic, demographic and indicators of degree of

urbanisation. The 14 indicators are: population density, population in rural areas and cities below 1.000 inhabitants, share of the municipality area classified as land zone, share of employed in agriculture, share of the population between 17-64 year old, share of the population between 25-44 year old, the employment growth over the period 1994-2004, population growth in the period 1994-2004, average distance to express ways, work places in relation to the number of people within employment and in relation to commuting dependency, the share of the workforce with basic education level in 2005, the share of the work force with a medium or higher education in 2005, the average distance to areas with a large surplus of workplaces in 2004, and the taxable income per population in 2007.

Using this classification system, all municipalities in Denmark can be grouped into four different types of municipalities, according to the degree of rurality: 1) peripheral municipalities, 2) rural municipalities, 3) sub-urban municipalities and 4) urban municipalities. In this paper the first two types are seen as defining the rural economy and the last two types as the urban economy. Using the classification system, the distribution of municipalities in the five different administrative regions in Denmark is as shown in Table 1. As can be seen Region Hovedstaden, which include the Danish capitol with a population of 2 mio, has a larger share of urban municipalities. The rest of the regions are ordered in terms of travel distance to the capitol and when arranged in this way, the regions are also ordered according to the number of urban and sub-urban municipalities in the area, which means ordered according to the degree of rurality. The further away from the Danish capitol, the larger the share of periphery and rural municipalities and the more uniform the Rural economy is.

Table 1. Regional Distribution of Municipal Types, Share of Total Municipalities Within Region

	Region Hovedstaden	Region Sjælland	Region Syddanmark	Region Midtjylland	Region Nordjylland
Urban	86	29	9	11	9
Sub-urban	10	41	14	21	0
Rural	0	24	59	37	55
Periphery	3	6	18	32	36

Source: noegletal.dk and Author.

The level of analysis in this paper is the new Danish Regions and Municipals as of 1 January 2000, meaning 5 regions and 98 municipalities as the basic units of analysis. The data used in the analysis is register based statistics, primarily from the Danish Statistical Office, but also other sources have been used. It has not been possible to use the municipality as unit of analysis all the way through, but whenever possible, the relevant indication is inferred by using regional data in combination with the knowledge of the composition of municipalities within the regions. Using this classification, it implies that 37 pct. of the population of Denmark are located in the Rural economy, see Table 2.

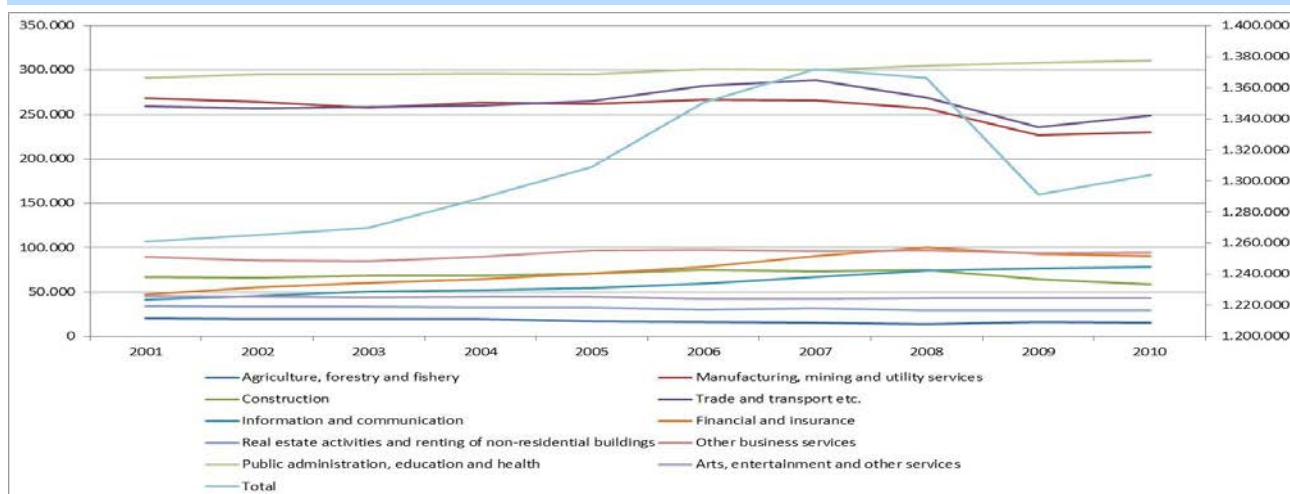
Table 2. Population: Municipal and Regions, Share of Total Population, Total Numbers, pct.

Municipal type	Share of population	Total Number of Types	Region	Share of population
Urban	47	35	Region Hovedstaden	30
Sub-urban	16	17	Region Sjælland	15
Rural	28	30	Region Syddanmark	22
Periphery	9	16	Region Midtjylland	23
Total Population	5.534.637	98	Region Nordjylland	10

3. The Impact of the Financial Crisis

The Danish Economy entered into a period of high GDP growth, decreasing unemployment levels and increasing employment possibilities in the beginning of the 2000s. The upturn ended abruptly mid-2008, when the world's economies, ignited by the US financial giant Lehman Brother's default, experienced stock market decreases similar to those of the Great Depression in the 1930s, and waves of failing financial institutions worldwide and plunging levels of economic activity. In a few months the Danish GDP plummeted by 60 bio. DKK (app. 8 bio. Euro), see Figure 2.

Figure 2. The Evolution of GDP, fixed prices 2005, mio. DKK.



Source: Danish Statistical Office and Author.

When the Financial crisis hit the financial world, the financial markets and the financial institutions reacted by closing all credit lines and toughening the conditions for credit, even for seemingly solvent firms and projects (ØEM, 2011). This meant that businesses, with a high dependence of credit for production, were facing an enormous pressure of adapting to the changed market conditions in a very short time. As a direct consequence the unemployment rate increased. The abrupt fall in production have since, then caused the Danish economy to be in a recession three times, within a 2½ year period. The latest figures (March 2012) show no or modest GDP growth (Danish Statistical Office).

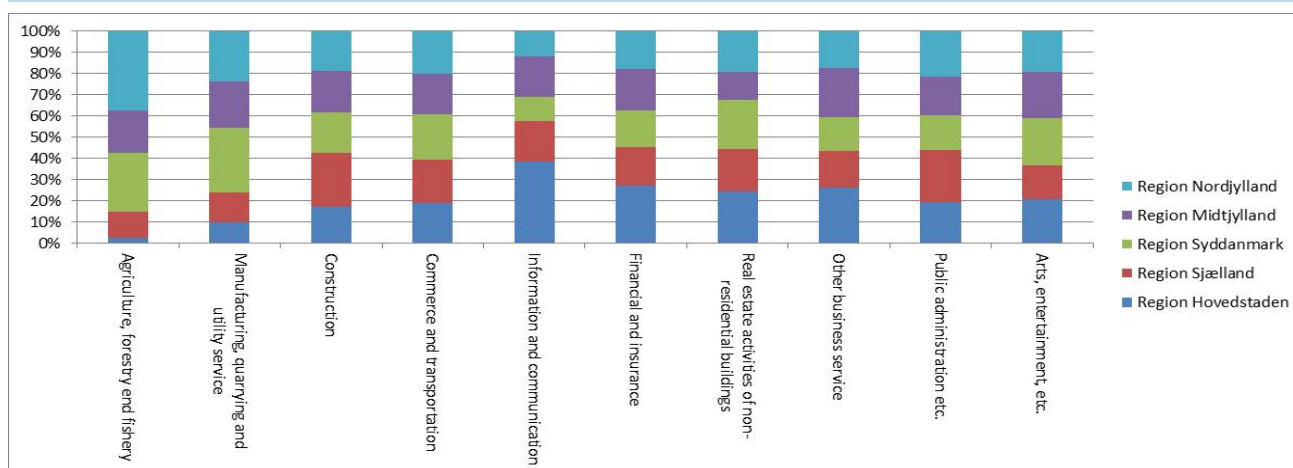
Not all sectors have been hit with the same force or at the same time, as indicated by Figure 2. The reason is that the crisis is financial and asymmetric, in the sense that the crisis started with the financial institutions and then spread to other sectors, according to their dependency of finance. Comparing the impact of the financial crisis on the different sectors, it is evident that those areas that most noticeable have been affected in terms of GDP is: Construction, Manufacturing, Mining and Utility Services, Trade and Transport, as well as Financial and Insurance. The other sectors do not seem to have been affected, to the same degree by the initial impact of the crisis, see Figure 2. Typically businesses involved in construction react relatively rapid to changes in the economic cycles and to shocks, and usually more strongly than other sectors. This is because construction is

characterised by a high dependency of short term credits, and thus on the short term refinancing possibilities, at the end of the credit period. When an economic shock, as the financial crisis closes the credit possibilities the effect is, that almost all projects except those close to completion is closed down (ØEM, 2011 and Abildgren et al, 2011). The businesses within the areas of Financing and Insurance, like banks and life-insurance companies are off course particularly sensitive to financial crises, because their main producing factor is capital. On the other hand, businesses within the broad sector of Agriculture, Forestry and Fishery are not in the same way sensitive to a financial crisis, as the capital for production to a much greater extent is linked to the development of crop and land prices, which has a tendency to be uncorrelated to the economic cycles. Only in those cases where the farmer has geared his business to a significant degree, will the financial crisis have a similar effect as seen for other sectors of production. In recent years farmers in Denmark have been known to lend and invest in dubious often unrelated investments to farming with a speculative purpose, such as lending in Swiss francs, etc. (Landbrugsavisen, 2011).

4. Economic Activity in the Rural Economies

Although all types of broad sectors are located in all regions, not all sectors have the same weight in the region and thus also with regard to the Rural and Urban economy, see Figure 3. Region Hovedstaden, with a relative larger share of urban municipalities, seem to have an equal share of employment in all sectors except Agriculture, forestry and fishery, as well as Manufacturing, mining and utility services. In contrast region Nordjylland with a relative larger share of rural and periphery municipalities have a larger share of its employment in Agriculture, forestry and fishery. This pattern is also found for Region Syddanmark and Region Midtjylland, which also have a majority of rural and periphery municipalities.

Figure 3. Regional Business Structure in 2008 at the Broad Sector Level: Employed within Sector as Share of Country Total



Source: Danish Statistical Office and Author.

It would be reasonable to say that Region Syddanmark, Region Midtjylland and Region Nordjylland have the majority of jobs within the sectors: Agriculture, forestry and fishery, Manufacturing, mining and utility services, Construction, as well as Commerce and transportation.

All sectors are known to offer jobs, which predominantly require no or few skills, i.e. vocational training. In contrast the Region Hovedstaden has a larger share of jobs within the remaining broad sectors, which typically require people with a higher education, see Figure 3.

In a bivariate analysis of the number of municipalities and regional share of sectorial employment, the pattern becomes even clearer as the number of rural and periphery municipalities within a region is found to be negatively correlated with all broad sectors, except Agriculture, forestry and fishery, as well as Manufacturing, mining and utility services. Thus, this suggests that the Rural economy is to a large extent resource based. At the same time it seems reasonable to see the Rural economy as being just as diverse in terms of economic activity as the Urban economy, although the weight of the different sectors is different, according to their economic contribution to the economy, see Table 3.

Table 3. Relation between Broad Sector and Municipality Type Within the Region, 2008

		Correlations			
		Urban municipals	Sub-urban municipals	Rural municipals	Periphery municipals
Agriculture, forestry and fishery	Pearson Correlation	-.712	-.406	.947*	.799
	Sig. (2-tailed)	.177	.497	.015	.105
	N	5	5	5	5
Manufacturing, mining and utility services	Pearson Correlation	-.182	-.213	.747	.556
	Sig. (2-tailed)	.770	.731	.146	.330
	N	5	5	5	5
Construction	Pearson Correlation	.762	.143	-.252	-.203
	Sig. (2-tailed)	.134	.819	.683	.743
	N	5	5	5	5
Commerce and transportation	Pearson Correlation	.750	-.040	-.188	-.149
	Sig. (2-tailed)	.144	.949	.762	.811
	N	5	5	5	5
Information and communication	Pearson Correlation	.966**	-.006	-.666	-.450
	Sig. (2-tailed)	.007	.992	.220	.447
	N	5	5	5	5
Financial and insurance	Pearson Correlation	.913*	-.061	-.505	-.326
	Sig. (2-tailed)	.031	.922	.385	.592
	N	5	5	5	5
Real estate activities and renting of non-residential buildings	Pearson Correlation	.871	-.094	-.326	-.425
	Sig. (2-tailed)	.054	.881	.592	.475
	N	5	5	5	5
Other business services	Pearson Correlation	.873	-.047	-.504	-.231
	Sig. (2-tailed)	.053	.940	.387	.708
	N	5	5	5	5
Public administration, education and health	Pearson Correlation	.913*	.040	-.520	-.349
	Sig. (2-tailed)	.031	.948	.369	.565
	N	5	5	5	5
Arts, entertainment and other services	Pearson Correlation	.713	-.118	-.169	-.050
	Sig. (2-tailed)	.176	.851	.785	.936
	N	5	5	5	5

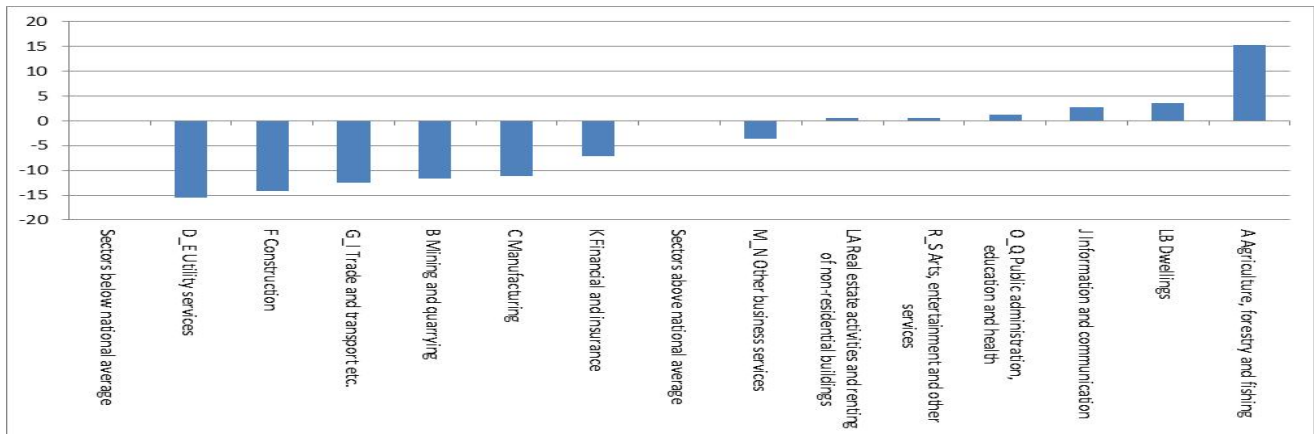
** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: dst.dk and Author.

The initial economic shock and the ensuing economic downturn have centred on the most capital intensive sectors of production, whereas less capital intensive sectors have so far been relatively unharmed. For example Agriculture, forestry and fishery show a growth rate of approximately 15 pct. for 2009 and utility services a negative growth of approximately the same amount, see Figure 4.

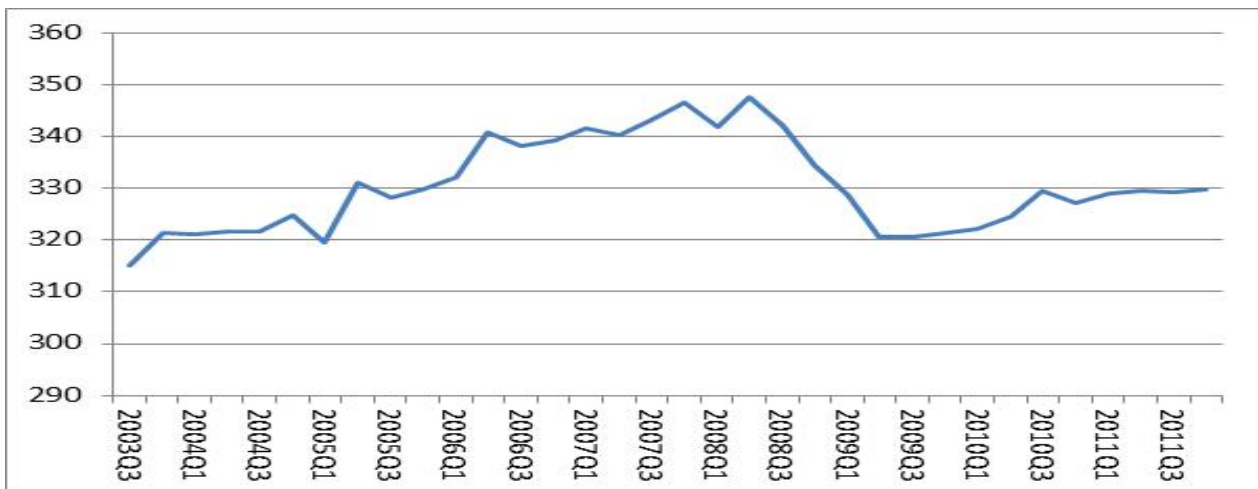
Figure 4. Annual Growth Rate: Sector Comparison, Gross Value Added, 2009



Source: Danish Statistical Office and Author.

The impressive growth rate of Agriculture, forestry and fishery cannot be explained by factors caused by the financial crisis, as all of them would imply a negative impact on growth. Thus, factors that characterise the economic sectors, and thus factors inherent to the Rural or Urban economy, seem to be the only possible explanation. Although when considering the evolution of Gross Value Added (GVA), it does not seem to support the growth rate seen for Agriculture, forestry and fishery, as the total GVA plunged in the same period, see Figure 5.

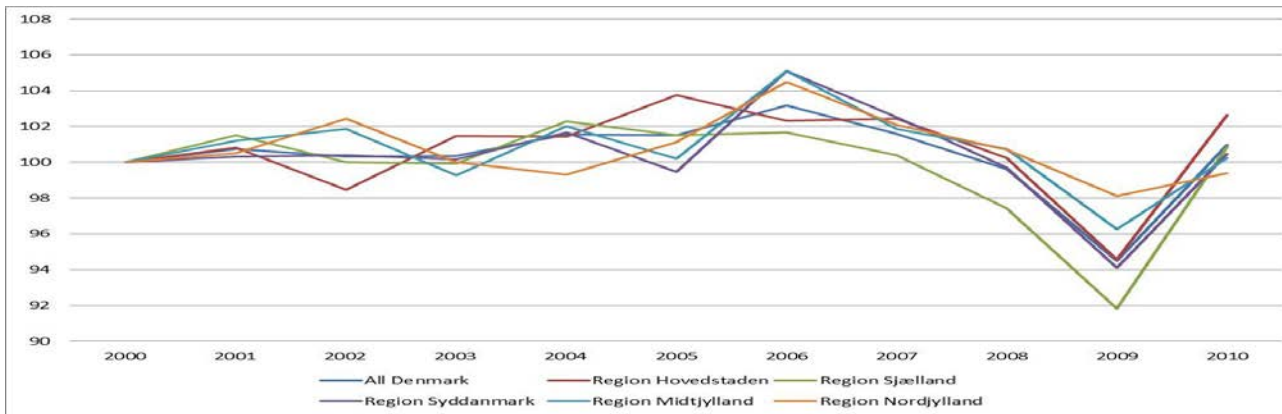
Figure 5. Gross Value Added: 2005 prices, bio. DKK



Source: Danish Statistical Office and Author.

The plunge is even more obvious, if we isolate the effects according to region. The impact of the financial crisis is all too clear to see, as a very sharp drop in GVA for all regions, see Figure 6. Of equal interest, is that the plunge is followed by an immediate increase in GVA, in all regions equalling the level of 2008 and for some regions even surpassing previous levels. What is also interesting to see, is that the region with the highest number of rural and periphery municipalities, i.e. Region Nordjylland, is the region that have experienced the smallest drop in GVA and in terms of economic activity has thus managed the turmoil better than the rest of the regions. This could indicate that the level of rurality has an insulating effect on financial shocks, see Figure 6.

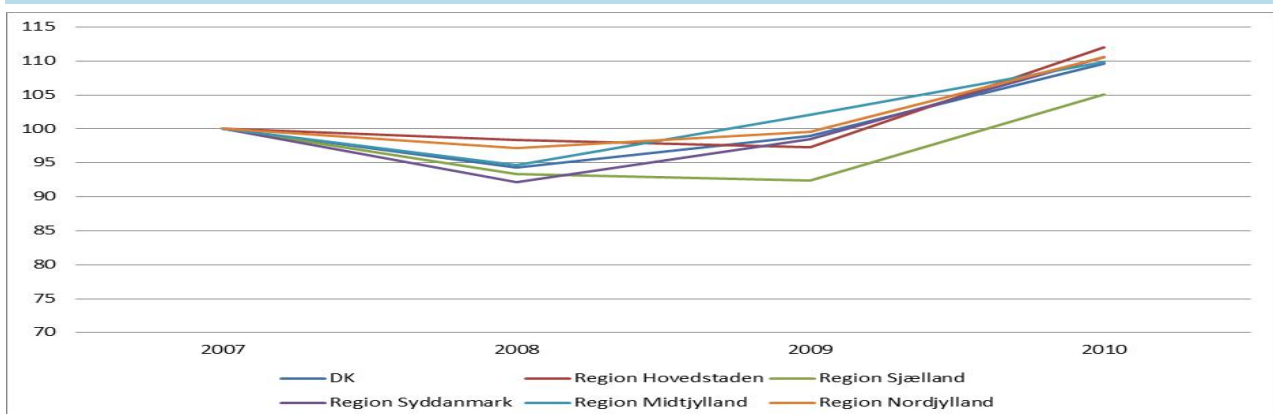
Figure 6. Evolution of GVA by Region, 2000-2010, index 2000=100



Source: Danish Statistical Office and Author.

One way to interpret the rate of growth in the Rural economy, is to compare it against the agricultural exchange rate, i.e. the ratio between sales prices of agricultural products to the factor prices. The exchange rate expresses the ability of agricultural producers to convert the cost of producing into revenue and an exchange rate greater than one, implies profits. In the years leading up to the financial crisis the exchange was below one, but in the period after the crisis, the exchange rate has increased, even beyond the pre-crisis levels. Thus, the sector has been able to convert its production into profit at an increasing rate, even under and after the financial crisis, explaining the impressive growth of the sector found in Figure 4. Further, this is supported by findings by Hahnemann and Koch (2011), who finds that prices on raw materials in general have had a tendency to increase, since the turn of the millennium and up until the financial crisis in mid-2008, but after a sharp drop in prices in the proceeding period, the increase in raw material prices have returned to new high levels, and thus have helped to sustain growth in the agricultural sector, see Figure 7.

Figure 7. Exchange: Sales Prices to Factor Prices, index: 2007=100



Source: Danish Statistical Office and Author.

In terms of economic performance the Rural economy have managed the financial crisis quite well, although important regional differences exists for the Rural economies. These differences can be explained, as due to a region's relative dependence on certain sectors, such as for example

construction to agriculture (compare the evolution of GVA in Figure 6 with the regional business structure in Figure 3). The better performance will enable the Rural economy to bounce back faster, than otherwise would be the case. Thus, resilience in terms of economic activities, when faced with a financial shock, implies an economy less dependent on economic activities linked to capital and a higher degree of rurality.

5. Unemployment and employee jobs

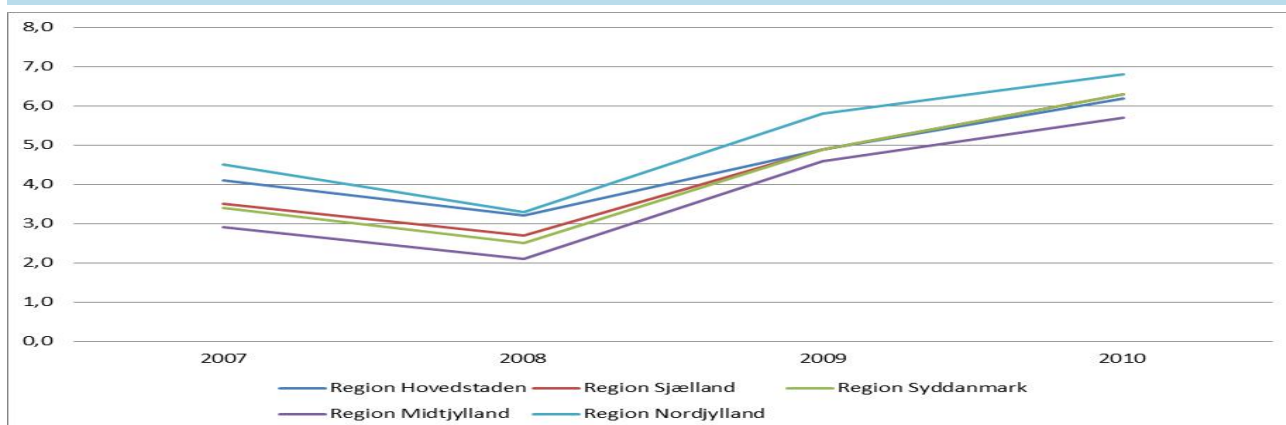
The level of employment is a changing element in the Rural, as well as in the Urban economy. Basic demand and supply conditions, as well as production technologies, have a lot to say with regard to the level of employment and unemployment. When an economy is hit by an economic shock, its resilience can be considered in terms of how well, it is able to sustain its employment when placed under stress. Resilience could though also be understood, as the ability of the economy to adjust to the immediate shock through the firms of the economy's ability to slash costs, and thus be the quite opposite to sustained employment, but rather its ability to cut "excess" employment (BRR, 2011). In this paper resilience is seen as the economy's ability to adjust employment levels quickly to sustain economic activity.

The unemployment rate in the Rural economy has historically been higher compared to the rest of the country (Jensen, 2010). The evolution in the unemployment rate has over time to some degree had different trajectories in the Urban economy to that of the Rural economy, but the difference has in recent years been very small. In the time leading up to the financial crisis, the unemployment level in Denmark decreased and in particular in the rural and periphery municipalities. From a short run perspective the unemployment rate fell from 5-6 pct. of the workforce to below 3 pct. As a consequence of the financial crisis, the unemployment rate has once again increased and was approximately 3.5 pct. in December 2009 (Jensen, 2010). The greater co-variation in the unemployment rates indicate, that there must be common factors influencing the trajectories. With regard to the evolution of unemployment and employment measured in terms of workplace, then the evolution in unemployment and employment is as one would expect it to be: When employment increases the level of unemployment decreases. With regard to the Rural economy this relation is weak. Even though the unemployment rate has a negative trend, then this is not explained in full by a similar positive trend in employment levels. This indicate that a significant large proportion of the decrease in unemployment rates for the Rural economy cannot be attributed by an increase in employment related to economic activities within the Rural economy (ibid).

The explanation for this is that the level of commuting from the Rural economy to the Urban economy has increased significantly over the past decade. This indicate that the employment level in the Rural economy is sustained by a net-export of labour to the Urban economy, as well as by the fact that the labour force in the Rural economy is decreasing, whereas in the Urban economies it has been almost stable. The Rural economy has been experiencing an almost stable population decrease, whereas the Urban economies have seen a population increase. This shows that the Danish population to an increasing degree does not settle and offer its labour in the Rural economy (ibid).

The impact of the financial crisis on the regional job market is interesting, in the sense that the most "rural" region, Region Nordjylland seem to follow its own trajectory, experiencing constantly higher levels of unemployment than the rest of the regions. Whereas Region Midtjylland, with a more balanced number of municipality types, have constantly experienced a lower unemployment rate than other regions. The rest of the regions have converged and seem to follow the same trajectory in the period after the financial crisis until the end of the period, see Figure 8.

Figure 8. Unemployment Rate by Region 2007-2010: Pct. of Total Regional Workforce

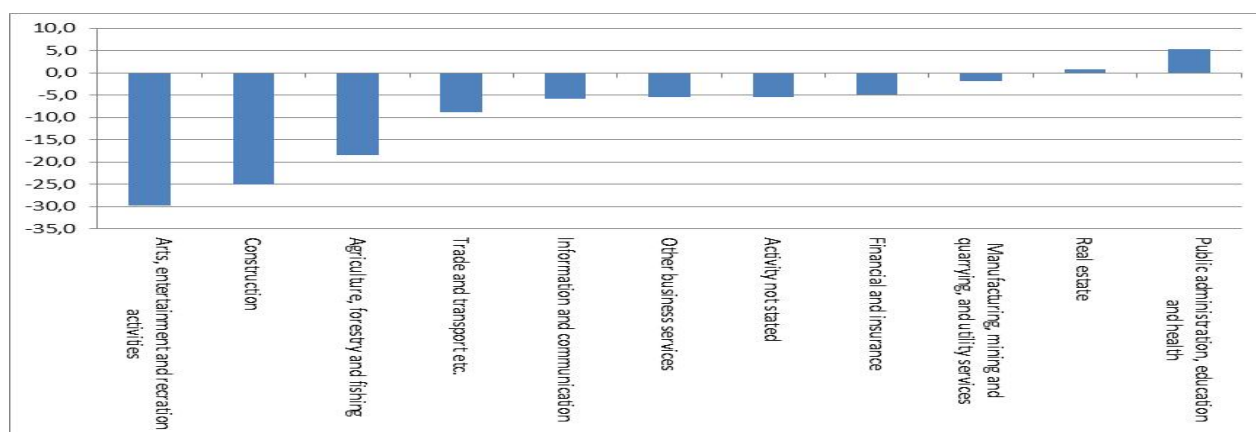


Source: Danish Statistical Office and Author.

Although the convergence and relative levels of unemployment is relevant when analysing economic resilience, another important factor to consider is the economy's ability to adjust to economic cycles. In other words, how has the variance of unemployment level been evolving over the considered time period. Provided that resilience is the economy's ability to retain approximately the same levels of employment over time, high variance levels of employment could be seen as an indication, that the economy's business structure's ability to adjust in terms of employment to economic shocks is high, but that the overall resilience of the economy towards economic cycles is low. On the other hand, resilience could also be interpreted as an economy's ability to adjust in times of crisis, in that case high variance levels would be an indication of high resilience (BBR, 2011).

Given the comparatively little impact of the financial crisis on the Rural economy in terms of economic activity, one of the largest declines of sector employee jobs is in fact that of Agriculture, forestry and fishery. The decline could be misleading, since the sector is known to have a relatively low level of employment, meaning that a relatively small absolute change, will lead to a high percentage change. Furthermore, the sector is known to have a high level of self-employment, something that is not reflected in the statistics. Thus, a more stable employment may be the actual case, rather than the somewhat gloomy one depicted in Figure 9.

Figure 9. Change in Employee Jobs: 2008Q1 to 2010Q1, Percentage change



Source: Danish Statistical Office and Author.

The relative dependence on construction in all Regions have had negative impact on employment in the Rural, as well as the Urban economy, this is what The Economic Council of the Labour Movement (Bjørsted, 2012) in 2012 find an analysis of employment patterns in Denmark. Bjørsted (2012) finds that, since the start of the crisis, employment in Denmark has fallen by approximately 150.000 and regions outside Region Hovedstaden has been hit more severely. The regional decline in jobs for the period 2008 to 2011 can be seen in Table 4.

Table 4. Decline in employee jobs, loss end-2011 in percentage of pre-crisis total level of jobs

Region	Decline in jobs
Region Hovedstaden	7.6
Region Sjælland	13.3
Region Syddanmark	14.1
Region Midt	11.6
Region Nordjylland	13.2

Source: Bjørsted (2012) and Author.

The different impact of the financial crisis on the regions can also be seen, by examining the yearly average change in productivity (GVA per workforce jobs) for the period 2006, when the economy were near the top, to 2010, when the economy is at the bottom. As shown a period characterised by drop in economic activity and job loss. The level of total yearly average regional productivity clearly shows that the degree of rurality is important for retaining a positive productivity for most sectors. In fact only the regions with the highest degree of rurality have a positive total yearly average productivity, see Table 5. What is also apparent is that many regions have experienced productivity decreases in almost all sectors, for example Region Sjælland except those associated with the public sector. Some sectors show signs of decline even across regions, such as for example Real estate activities, etc. a sector heavily dependent on household access to cheap credit. Some sectors like Agriculture, forestry and fishery have experienced decreased productivity during the period in the regions associated with a low degree of rurality, such as Region Hovedstaden and

Region Sjælland, but increases in those regions with a high degree of rurality, such as Region Syddanmark, Region Midtjylland and Region Nordjylland. Also noticeable is the productivity increases associated with public sector activities, faring at levels that far exceed other sectors, see Table 5.

Table 5. Yearly average productivity, 2006-2010, GVA per workforce job

	Region Hovedstaden	Region Sjælland	Region Syddanmark	Region Midtjylland	Region Nordjylland	Total Average Sector Productivity
Agriculture, forestry and fishery	-0,208	-0,082	0,571	0,469	0,286	0,207
Mining and quarrying	-0,251	-0,06	-0,678	-0,192	0,099	-0,216
Manufacturing	0,225	-0,208	0,19	-0,106	-0,06	0,008
Utility services	0,029	0,004	0,087	0,03	0,08	0,046
Construction	-0,344	-0,367	-0,436	0,436	-0,368	-0,216
Trade and transport etc.	-0,218	-0,347	-0,394	-0,43	0,39	-0,200
Information and communication	0,154	-0,175	0,061	0,197	0,226	0,093
Financial and insurance	0,102	-0,057	0,024	0,335	0,063	0,093
Real estate activities and renting of non-residential buildings	-0,045	-0,107	-0,178	-0,151	-0,055	-0,107
Other business services	-0,538	-0,387	-0,379	0,415	-0,365	-0,251
Total Average Regional Productivity excl. Public Sector	-0,109	-0,179	-0,113	0,100	0,030	-0,054
Public administration, education and health	-1,525	1,042	3,514	2,439	-0,722	0,950
Arts, entertainment and other services	0,575	1,107	-0,757	-0,423	0,722	0,245
Total Average Regional Productivity incl. Public Sector	-0,170	0,030	0,135	0,252	0,025	0,054

Source: Danish Statistical Office and Author.

Although the Rural economy is for a large part resource-based, the economic impact of the crisis on other sectors has led to an overall negative impact on employment for the Rural economy. This is also the case for the Urban economy, although the impact on employee jobs seem to have been smaller. Both economies tend to be hit hard on employee jobs by a financial crisis, and regional differences can be explained by the relative importance of certain sectors in the economy, especially those sectors that are dependent on capital. Resilience in terms of employment implies an economy that has a number of economic activities that has low correlation to economic cycles and to different economic shocks.

6. Access to Credit

Except the odd few, all firms within an economy will at some point need to raise capital to finance its business. In that case access to credit is very important. The easier the access the less costly, it will be for firms to remain in business and the higher the level of competition and economic growth one will see (e.g. Winter-Nelson and Temu, 2005). Access to credit is an important aspect of resilience, as unequal access will necessarily place businesses in one economy at an advantage to businesses in the other.

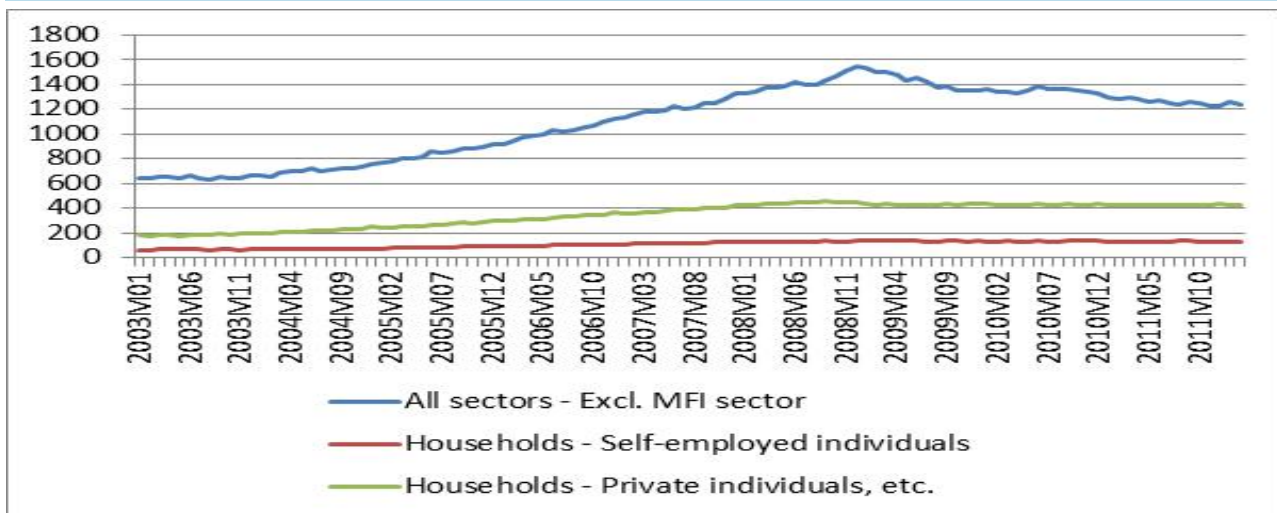
The immediate effect of the financial crisis was the tightening of credit conditions by financial institutions. The major concerns of many financial institutions, at the time, were the too large exposure towards certain businesses, especially within the sectors Construction and Agriculture, something that the institutions sought to limit their exposure to (ØEM, 2011, s. 9). To prevent a domino effect of collapsing Danish financial institutions, and thus to safeguard the integrity of the Danish economy, the Danish government created bank rescue packages covering all Financial institutions operating in Denmark. The rescue packages enabled the financial institutions to get a state guarantee on foreign lending and to boost their tier 1 capital by providing a lending option directly from the Danish government. As a condition for the capital injection the Danish financial

institutions was required to ease their credit restrictions. To ensure compliance, the development in credit conditions would be monitored by the government, something that prior to the financial crisis had never been done before (ibid).

As a result, according to the Danish Central Bank, the financial crisis in Denmark have not been characterised by a general credit crunch, but the crisis resulted in a significant production loss caused by the financial crisis general negative impact on the entire economy (Abildgren et al, 2011). And further, Companies with a "weak" bank connection had a higher bankruptcy risk in the period 2008 to 2009, than similar firms with a "sound" banking connection. There are no signs that non-bankruptcy stricken company's return on capital during the financial crisis has been affected by the 'health' of their banking connection (ibid).

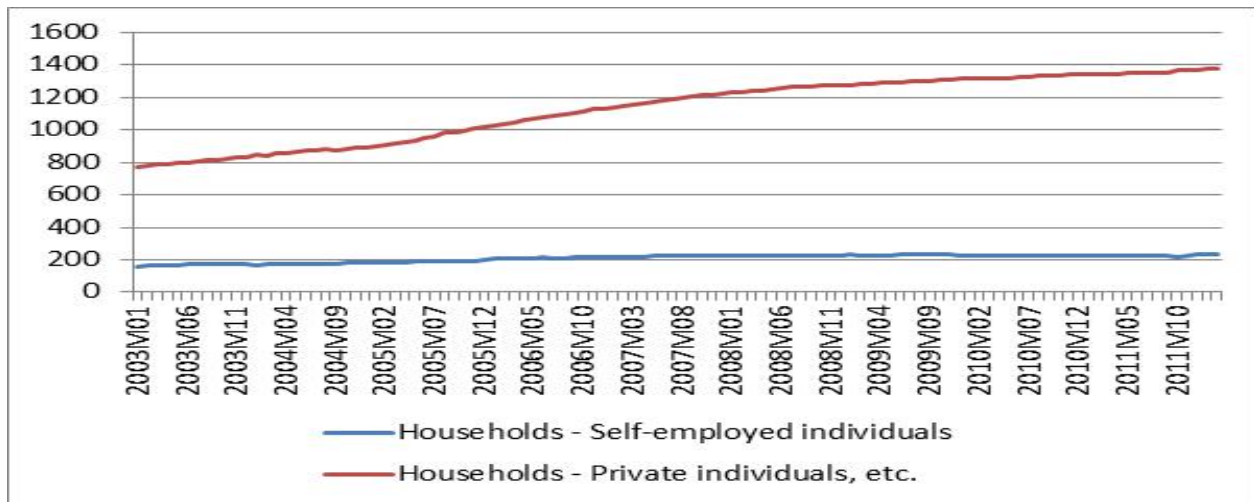
The major sources for credit in an economy are banks and mortgage credit institutions and as such vital for businesses and for the economy. The developments in lending activities by both sources to the main sectors are presented in Figure 10 and Figure 11. As can be seen the strong increase in total lending, leading up to the financial crisis, has been replaced by a modest decrease in the level of total lending. It is also noticeable that household lending doubled in the "few" years leading up to the financial crisis, indicating that financial institutions were not only exposed to credit to firms, but also to a high degree to households.

Figure 10. Evolution of Bank Lending by Main Sectors, bio. DKK



Source: Danish Central Bank and Author.

Figure 11. Evolution of Mortgage Credit Institution Lending to Households, bio. DKK



Source: Danish Central Bank and Author.

The broad sectors with the highest level of lending both before and after the Financial crisis are; Financial and Insurance Activities, Real Estate, Agriculture, Forestry and Fishing, followed by Manufacturing. Thus, one would expect both the Rural and the Urban economy to be affected by the financial crisis, but there are important differences especially with regard to the type of lending of the different sectors.

Lending at credit institutions are required by Danish law to be secured in underlying assets, such as land or real estate, the obtainable credit has in addition to a longer maturity also a much lower interest rate, and thus is far less vulnerable to the financial crisis (ØEM, 2011). Thus, the Rural economy's lending can be seen as consisting of loans with a much longer maturity at a lower interest rate, than within the Urban economy, as a large part of the outstanding credit is with credit institutions. This is seen for example by comparing lending of Agriculture, Forestry and Fishing to lending of Manufacturing or by considering the lending of Financial and Insurance in Table 4.

Table 6. Distribution of Lending to Broad Sectors by Lenders and Growth Rate, bio. DKK and pct.

	Banks			Credit institutions		
	2009Q1	2011Q1	Growth	2009Q1	2011Q1	Growth
Agriculture, forestry and fishing	59,5	58,1	-2,4	211,1	226,5	7,3
Mining and quarrying	1,7	1,2	-32,9	0,2	0,2	12,1
Manufacturing	116,2	103,3	-11,1	35,4	34,7	-2,0
Electricity, gas, steam and air conditioning supply	19,7	19,6	-0,4	5,0	11,1	122,6
Water supply, sewerage and waste management	2,0	1,9	-4,5	0,4	0,4	14,0
Construction	33,0	28,1	-14,8	24,0	24,2	1,2
Wholesale and retail trade	79,6	76,8	-3,6	42,2	42,6	1,0
Transportation and storage	48,8	38,5	-21,2	7,7	9,1	17,4
Accommodation and food service activities	9,8	11,5	17,7	10,7	11,0	3,1
Information and communication	13,5	15,5	14,3	6,3	7,6	20,1
Financial and insurance activities	466,1	493,1	5,8	375,6	521,3	38,8
Real estate activities	132,8	135,2	1,8	404,0	461,0	14,1
Professional, scientific and technical activities	32,4	28,7	-11,7	24,0	26,4	10,0
Administrative and support service activities	17,2	17,4	1,5	15,5	13,2	-14,9
Public administration and defence	18,8	21,3	13,0	2,3	1,7	-27,3
Education	1,9	2,5	30,4	19,5	25,3	29,5
Human health and social work activities	10,9	7,1	-34,8	13,4	14,6	9,3
Arts, entertainment and recreation	5,8	4,9	-15,9	4,9	5,6	14,5
Other service activities	7,6	6,3	-16,0	8,4	10,3	22,9
Activities of households as employers;	1,0	0,2	-79,3	0,4	0,5	20,0
Activities of extraterritorial organisations and bodies	0,0	0,0	140,0	0,0	0,0	0,0

Source: Danish Central Bank and Author.

Resilience in terms of access to credit, when faced with an economic downturn or economic shock, implies that an economy has a relative low dependence on credit with a short maturity, and that there is an easy access to credit in the economy, even when financial institutions are under stress. It is found that the Rural economy depend to a higher degree on secured long term credit that tend to have a lower interest rate and as such less vulnerable to financial shocks compared to the Urban economy.

7. Education Choice and Future Economic Well-being

Education is central for economic development in a small open economy, such as the Danish, which cannot base its economy on the extraction of resources alone. In addition the globalization and the mobility of goods; services; capital; and labour, places great pressure on how continued development can take place (Greve and Jespersen, 2011). In a small country like Denmark, where the distance between what is local, regional and national at times seem insignificant and at other times to be all important, it is necessary that the local areas is able to adapt to changes not only to other locations in Denmark, but to locations within the global community. Globalisation has led to a number of unskilled, as well as skilled jobs to move to other countries, where the conditions for producing and the level of costs are lower. These reallocations of resources between economies globally have already been taken places for centuries, just internally in the world's countries. Internally in Denmark, the migration of economic activities between rural and urban economies have happened, due to better understanding of, and better exploitation of local advantages for economic activities and opportunities, such as the ability to combine existing social capital with the relative abundance of physical resources.

Education choice is affected by many different sources such as: parents' education level, income, relation to the job market, incentives within the educational system, the relative economic attractiveness of education to employment, as well as more difficult to quantify factors, such as the

value society places on education, the opinion of family and friends on education, etc. (Becker, 1993; Hutter and Brown, 2011; Jensen and Jensen, 2005; Jæger et al, 2003). In relation to education choice in rural or remote areas, the relative importance of these factors may be different than for persons living here. Local factors such as easy access to education, the supply of educations, job market structure and the local employment possibilities may be more significant in rural areas, because education imply moving to urban areas, as the main educational institutions are located in urban areas in Denmark (Huric Larsen and Hjalager, 2012). If a geographic area is dominated by a particular business structure, or by people with a specific educational attainment, it seems reasonable to assume that education choice to a much higher degree is correlated with these particularities than otherwise (Garner and Raudenbush, 1991).

Although education choice as such is affected by many factors, it is reasonable to interpret it as indicating how people within the economy perceive the future situation of the economy they live in. When a sector is affected by an economic shock, it will almost always have a negative consequence for job creation and employment levels. Thus, if a sector primarily found in one municipal type is hit more severely than other sectors, one would expect it to be reflected in the way that people perceive their future in the local economy in terms of employment and lasting income. The change in perception will also have an impact on education choice, provided educational choice is linked to peoples' perception of the local economy. The question is whether the financial crisis have had a general negative impact on education choice or just for the sectors that have been hit more than others. If the education choice has not changed, due to an economic shock, it must be because peoples' perception of the future has not changed. Thus, education choice could be interpreted as indicating the economy's resilience to an economic shock (BRR, 2011).

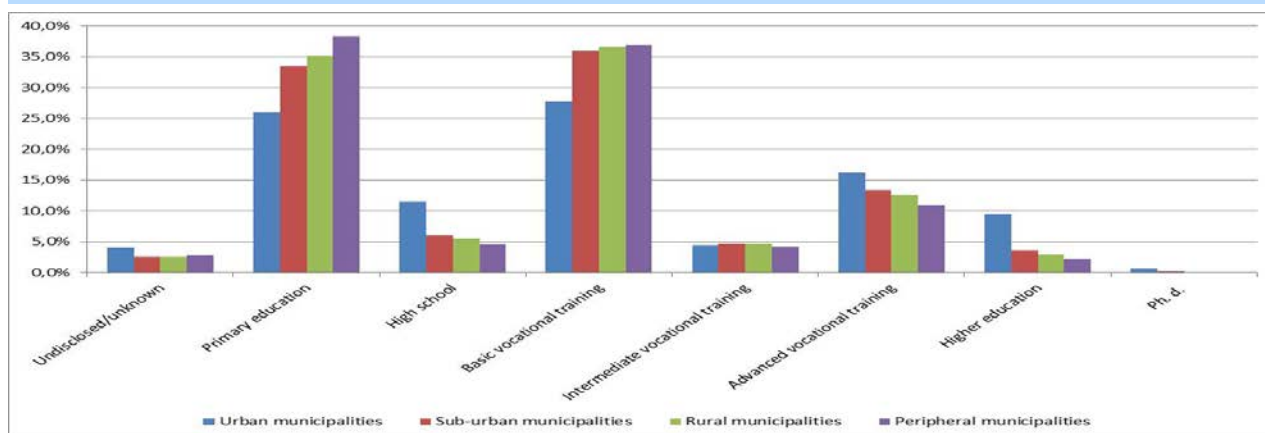
It would be reasonable to assume that the highest educational attainment and education choice of the people of an area is linked to the business structure and local job market opportunities of that area, and no change or moderately negative change could be seen as a sign of the economic resilience of the area in times of crisis. If the highest educational attainment and education choice suddenly drops, it must mean that the prospects for the future in the area, as well as the potentials for local development has dropped, and thus that the economic well-being of the area has decreased (Osberg and Sharpe, 2002).

The importance of certain educations for regional development has been examined and it is found that from the point of view that certain education types provide more value added or a higher degree of social capital for the area (OECD, 2007; Cooke & Leydesdorff, 2006). Participation in the regional job market depends on the general education level in an area, to some authors even to a high degree (Søgaard, 2011), but always in conjunction with the general structure of the job markets and the business structure that characterises an area.

Sub-urban, rural and periphery municipalities are in many ways similar, in that the highest educational attainment in the areas show the same pattern. The vocational educations, profession bachelors and to some degree also advanced vocational educations are the type of educations most likely to be encountered in the Rural economy. In comparison there seem to be a majority of people

with medium long, higher and Ph.D. educations in the Urban economy, just as the share of the population with a high school education is larger compared to the Rural economic areas, see Figure 12.

Figure 12. The Distribution of Population According to Highest Level of Educational Attainment, 2009, pct. of area total

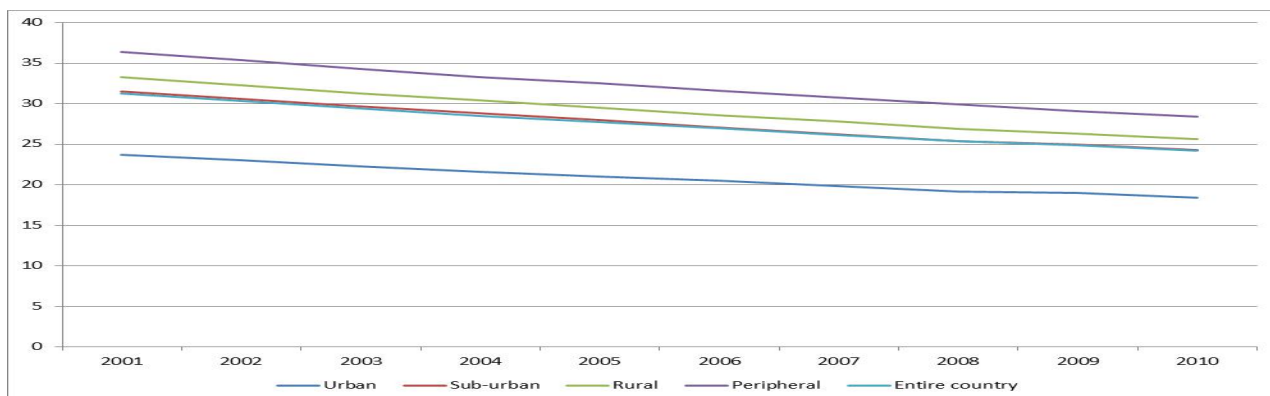


Source: uvm.dk, Danish Statistical Office and Author.

The differences could be due to the general business and market structure, as well as the way the job market in the two economies function, but also to the fact that most educational facilities are located in the Urban economy in Denmark. In fact all higher educational institutions are located in the Urban municipalities, indicating that educational institutions are at the very “heart” of the Urban economy.

The share of 25 to 64 year old without a vocational education has been decreasing for the entire period 2001 to 2010. The share of 25 to 64 year old without a vocational education has decreased from approximately 1/3 of the entire population to approximately 1/4 for the areas outside the urban municipalities for the considered period (Hurić Larsen and Hjalager, 2012), see Figure 13. A closer look at the numbers reveals that the decrease has happened at different speeds in the four areas. Assuming that the decrease in the period has happened at an approximately constant speed, the areas can be divided in the following ways. For the entire country the share of people without a vocational education has over the entire period been decreasing at an approximately yearly rate of 0.71 pct. In comparison the average yearly decrease has been 0.59 pct. for the urban municipalities, 0.81 pct. for the sub-urban municipalities, 0.86 pct. for the rural municipalities and 0.89 pct. for the periphery municipalities. This implies, that the decrease happens at a much faster rate in the peripheral areas than in the rest of the country, and that the decrease happens at a much faster rate in the Rural economy than in the Urban economy. Thus, the Rural economy is catching up with the Urban economy, with regard to people with an vocational education, see Figure 13.

Figure 13. Evolution of Share of 25-64 Year Old Without vocational education, pct. of the Areas' Population Group



Source: noegletal.dk and Author.

A high share of the population with a higher education has a tendency to increase the general income level in an area and work as a driver for innovation and development leading to job creation and growth in an area (OECD, 2007 and Lam and Lundvall, 2006). As this is the case, it is highly relevant to examine how the general upturn in the economy prior to the financial crisis has affected the development in the number of people with a higher education in the Rural and Urban economies.

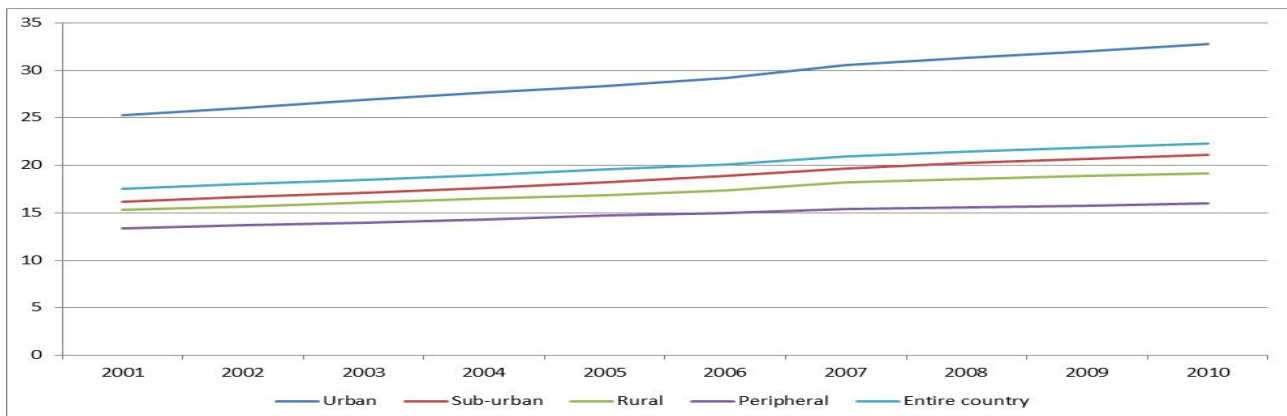
Given the geographical distribution of educational institutions, where especially the universities are located in the major cities, and thus per definition is perceived as being further away from the rural and peripheral areas, the choice of starting a higher education, will be seen as a more important decision and involve a higher level of social cost to a person from the Rural economy (Huric Larsen and Hjalager, 2012). Urban municipalities have a higher share of its population with a higher education, given the fact that the educational institutions are located here. So are the industries and businesses that tend to employ and demand highly skilled labour. Thus, it is reasonable to assume that a higher share of the population in the urban municipalities orientate themselves towards the educational institutions located here and towards the educations that these institutions provide access to. Implying that it is more likely to encounter a person with a higher education in the urban economy than in the Rural economy (ibid).

The share of 25 to 64 year old with a higher education has increased in a stable manner over the past 10 years. The increase is not the same in the different areas, just as the share of persons with a higher education differs within the areas. There does not seem to be a clear indication that the development can be linked to the economic development or to the shock to the economy of the financial crisis, as there is no drop in the evolution, see Figure 14.

When considering the average increase over the period, differences exists between the education choices of a higher education between the areas. The share of persons with a higher education for the period under consideration has increased by approximately 0.55 pct. yearly for the entire country. In comparison the average yearly increase for the period is 0.85 pct. for urban municipalities, 0.58 pct. for sub-urban municipalities, 0.46 pct. for rural municipalities and 0.30 pct. for peripheral municipalities. This implies in contrast to the tendency of vocational education, that no alignment is taken place between the Rural and Urban economy with regard to the share of the

population with a higher education. On the contrary the evolution seems to point in the opposite direction, towards an ever greater concentration of persons with a higher education in the Urban economy, se Figure 14.

Figure 14. Evolution of Share of 25-64 Year Old with Higher Education, pct. of area population



Source: noegletal.dk and Author.

It is though not only between the urban municipalities and the peripheral municipalities where the difference has increased, but the tendency can be seen for all other areas compared to the urban municipalities. In other words, the number of people with a higher education is concentrated in the center of the Urban economy. This implies that at least since 2001, persons originating from the Rural economy completing a higher education, choose to settle in the Urban economy instead of moving back to the Rural economy.

Resilience in terms of the perception of future economic possibilities, implies that an economy's population perceives their future economic position as relatively unchanged. No change is found as with regard to the perception of the future of the two economies, as education choice is not found to have changed due to the financial crisis.

8. Conclusion

In terms of economic performance the Rural economy have managed the financial crisis quite well compared to the Urban economy, although important differences exists for the areas comprising the Rural economy. These differences can be explained, as due to the area's relative dependence on certain sectors, mainly construction to agriculture. The better performance will enable the Rural economy to bounce back faster, than otherwise would be the case. The degree of rurality thus seem to have had an insulating effect on the rural economy and could be interpreted, as an indication of industrial specialization being an advantage, compared to industrial diversification in this case.

Although the Rural economy is for a large part resource-based, the economic impact of the crisis on other sectors has led to an overall negative impact on employment for the Rural economy. This is also the case for the Urban economy, although the impact on employee jobs seem to have been smaller. Both economies tend to be hit hard on employee jobs by a financial crisis, and regional

differences can be explained by the relative importance of certain sectors in the economy, especially those sectors that are dependent on capital.

During the past decade the rural and urban economies have become increasingly similar, although important structural differences still exist. From the point of view of economic convergence this is positive, but the linkage between the rural and urban economies, imply that certain economic shocks that once would have missed the rural economy altogether, in the near future will hit both economies to the same extent.

With regard to which economy will bounce back first and when it will, then economic recessions with bank crises tend be deeper and more severe, than economic recessions without bank crises in Denmark over the past 200 years (Abildgren et al, 2011). Only the future will tell whether this will also be the case for the present crisis.

References

- Abildgren, K., Buchholst, B., Qureshi, A. (2011). Samfundsøkonomiske omkostninger ved finanskriser. *Kvartalsoversigt* – 3. kvartal 2011 – Del 2 side 1-49, 20.09.2011, Danmarks Nationalbank.
- Andersen, L.B., Jakobsen, M.L.F., Pallesen, T., Serritzlew, S. (2010). *Økonomiske incitamenter i den offentlige sektor*. Viasystem.
- BBR (2011). *Building Resilient Regions*. Institute of Governmental Studies, University of Berkeley.
- Becker, G.S. (1993). *Human Capital – A theoretical and empirical analysis with special reference to education*. The University of Chicago Press, Chicago.
- Bjørsted, E. (2012). Over 5 gange flere arbejdspladser nedlagt på Fyn end i København. Arbejderbevægelsens Erhvervsråd, 16. april 2012.
- Duval, R., Elmeskov, J., Vogel, L. (2007). Structural Policies and Economic Resilience to Shocks. OECD Economics Department, *working paper*, 567.
- Garner, C.L., Raudenbush, S.W. (1991). Neighborhood Effects on Educational Attainment: A Multilevel Analysis. *Sociology of Education*, 64(4), 251-262.
- Gottlieb, P.D., Gogarty, M. (2003). Educational Attainment and Metropolitan growth. *Economic Development Quarterly*, 17, 325-36.
- Hill, E.W., Wial, H., Wolman, H. (2008). Exploring Regional economic Resilience. Institute of Urban and Regional Development, University of California, *working paper*, 2008-04.
- Jensen, P.S. (2010). En analyse af ledighedsudviklingen i udkantskommunerne. *CLF rapport* (1/2010).
- DST (2012). *Byggevirksomheden 4. kv. 2011*. NYT fra Danmarks Statistik, nr. 61, 9. februar 2012.
- Greve, B., Jespersen, J. (2011). *Den offentlige sektors økonomi*. Hans Reitzels Forlag.
- Hahnemann, N.P., Koch, M.C. (2011). Internationale råvarepriser: cykel, boble eller niveauskifte? *Kvartalsoversigt*, 2. kvartal 2011 Del 1, 16-06-201, Danmarks Nationalbank.
- Henderson, J. (2011). *Prospects for a Rural Recovery*. Federal Reserve Bank of Kansas City.
- Hill, E., Wial, H., Wolman, H. (2008). *Exploring Regional Economic Resilience*. IURD Working Paper Series, 06-10-2008, Institute of Urban and Regional Development, UC Berkeley.
- Hurić Larsen, J.F., Hjalager, A.-M. (2012). *Uddannelse og yderkommuner*. CLF report.
- Hutters, C. og Brown, R. (2011). *Hvor blev drengene af? Køn og uddannelsesvalg efter gymnasiet*. København: Center for Ungdomsforskning.

- Jensen, U.H., Jensen, T.P. (2005). *Unge uden uddannelse: Hvem er de, og hvad kan der gøres for at få dem i gang?* SFI.
- Jæger, M.M., Munk, M.D., Ploug, N. (2003). *Ulighed og livsløb: Analyser af betydningen af social baggrund.* SFI.
- Lam, A., Lundvall, B.A. (2006). *The Learning Organisation and National Systems of Competence Building and Innovation.* In Lorenz, E. and Lundvall, B.A. (eds.). *How Europe's Economies Learn: Coordinating Competing Models.* Oxford: Oxford University Press.
- Landbrugsavisen (2011). Landmænd har indfriet lån i schweizerfranc. *Landbrugsavisen.dk*, Torsdag 4. august 2011 10:22.
- Liu, A., Plyer, A. (2007). *The New orleans Index Second Anniversary Special Edition: A Review of Key Indicators of Recovery Two Years After Katrina.* Washington: Brookings Institution and Greater New Orleans Community Data Center.
- L&F (2011). *Landbrugets økonomi 2009 og 2010.* Landbrug & Fødevarer.
- Melgaard, P.M., Zobbe, H. (2002). Landbrugets indkomstproblem – dogme eller realitet? The Royal Veterinary and Agricultural University: Food and Resource Economic Institute, *working paper*, 2002/5.
- Menon, M.E. (2004). Information Search as an Indicator of Rationality in Student Choice of Higher Education. *Educational Economics*, 12(3).
- National strategi for Det danske landdistriktsprogram 2007-2013.
- Wial, H., Friedhoff, A. (2005). *Manufacturing Job Loss in the Great Lakes Region 1995-2005.* Washington: Brookings Institution.
- Winter-Nelson, A., Temu, A.A. (2005). Liquidity Constraints, access to credit and pro-poor growth in rural Tanzania. *Journal of International Development*, 17(7), 867-882.
- Osberg, L., Sharpe, A. (2002). An Index of Economic Well-being for Selected OECD Countries. *Review of Income and Wealth*, 48(3), 291-316.
- SAC (2010). *Rural Scotland in Focus 2010.* Rural Policy Centre, SAC.
- ØEM (2011). *Udviklingen i kreditmulighederne i Danmark, 2. halvår 2010.* Økonomi- og Erhvervsministeriet, notat af 29. juni 2011.